

NOTES ON A COLLECTION OF SNAKES MADE IN THE
NILGIRI HILLS AND THE ADJACENT WYNAAD.

By

LIEUT.-COLONEL F. WALL, I.M.S., C.M.G., C.M.Z.S., F.L.S.

(With Diagrams and Maps.)

A period of sick leave lasting in all for four months in 1917, and spent in the Nilgiris gave me a great opportunity for studying the snakes of that locality, and the interesting plateau known locally as the Nilgiri-Wynaad.

My thanks are due to the many Planters around who were kind enough to assist me in collecting, and without whose aid I would have obtained but little. I am indebted to the following gentlemen: Mr. J. B. Vernede of Rookery Estate, Mr. L. Gerard Rogers of Adderley, Mr. C. Vernede of Hill Grove, Mr. C. Hercus of Glendale, Mr. A. K. Weld-Downing of Frith Hall, Mr. R. S. Hunter of Pilloor, Mr. G. Oakes of Kalhatti, Mr. W. B. de Courcy of Liddelsdale, Mr. J. H. Wapshare of Hope, Mr. F. W. F. Fletcher of Rockwood, Mr. J. E. Bisset of Mayfield, and Mr. V. W. G. Bisset of Wentworth. The first six of these gentlemen are on estates on the Eastern slopes of the Nilgiri Plateau. Mr. Oakes is in the middle of the plateau, and Mr. de Courcy on the north-west confines overlooking the Wynaad. The last four gentlemen have estates in the Nilgiri-Wynaad, a locality politically in the Nilgiris, but zoo-geographically part of the Wynaad. The terrain is a complicated mass of mountain ranges that calls for special remarks. The *Gazetteer of India* says of the Nilgiris:

“It consists of two well marked divisions: the high steep sided plateau formed by the junction of the Eastern and Western Ghats as they run southwards down the two opposite sides of the Indian Peninsula; and lower area adjoining, and geographically forming part of, the Malabar-Wynaad. The plateau, which is divided into the two *taluks* of Ootacamund and Coonoor, averages 6,500 feet above sea-level, and several of its peaks run up to over 8,000 feet. The lower area adjoining the Wynaad forms the third, or Gudalur, *taluk*, and is often called the South-East Wynaad. It is only 2,000 to 3,000 feet above the sea, is more level than the plateau, and is covered for the most part with thick forest. * * * Along the south-western edge of the plateau runs a line of bold hills called the Kundahs, several of the peaks in which are over 8,000 feet in height. * * * The Western Ghats join the Eastern Ghats in the high plateau of the Nilgiris.”

“The Wynaad consists of a table land 60 miles by 30 miles, lying amid the Ghats at the average height of 3,000 feet above sea level.

Its most characteristic features are low ridges of hills, with sharp peaks (rising in some places to 6,000 feet) and extensive valleys. Towards the east, where it merges into the plateau of Mysore, the country becomes level. In the south-east the Ghats are low till they meet the Nilgiris near Naduvattam; on the west and south-west, where the *tabuk* joins the low country of Malabar, there are several peaks of over 6,000 feet. The annual rainfall averages 130 inches, but is much heavier in the west than in the east."

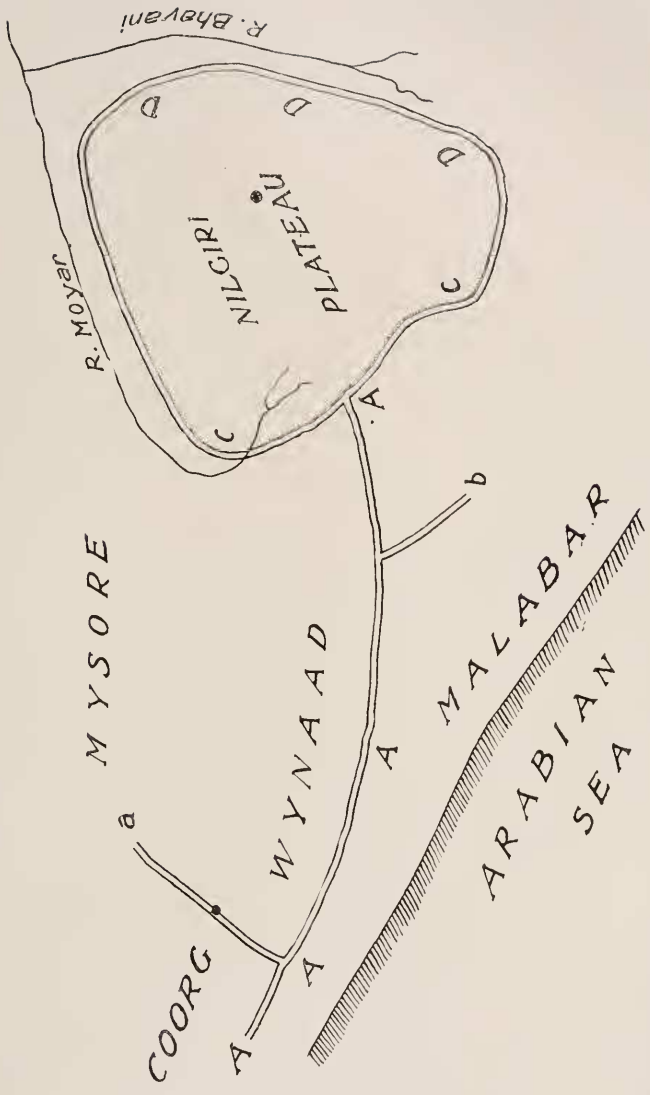
I am indebted to Mr. Fletcher of Rockwood for a far more detailed and lucid account of this terrain than can be gathered from the excerpts just quoted. I have erased from this a few sentences that were merely answers given to queries of mine, and which have no general interest as my preconceived ideas were hopelessly erroneous.

"The Wynaad is a narrow belt of jungle country lying between the Nilgiris and the Bramagiris. For the purposes of this argument its limits may be taken as coincident with the influence of the south-west monsoon above the Ghats. On the west the Sahyadris shut off this plateau from the Malabar plain: on the south (really south-east) the Kundahs separate it from the higher plateau of the Nilgiris. It is, then, easy to see why the species peculiar to the Wynaad cannot find egress to the Malabar plain or the Nilgiri plateau. North (really north-west) the Bramagiris form a dividing line between Wynaad and Coorg; and in this direction I should certainly expect the Wynaad snakes to continue up through Coorg, and the Mysore country adjacent to the Ghats, as far northwards as the physical conditions of altitude, rainfall, and climate conform to those of the Wynaad. These hills are neither very high nor very steep. The planting districts of Coorg and Mysore (and possibly a stretch of country farther north along the foot of Ghats) are so similar to Wynaad in every respect, that you would do well to make quite sure the Wynaad snakes are not found there. In these remarks you will see I take it for granted that all the species you found confined to the Nilgiri-Wynaad also occur in North and South Wynaad. I do this because the whole Wynaad belt has, practically, the same elevation, the same rainfall, and the same climate; and also because the boundaries between the three Wynaads are merely lines drawn on the map, and there is no natural barrier to confine the Wynaad species to the Nilgiri-Wynaad. As I have not studied the question, I cannot say definitely and from my own knowledge that the species peculiar to Nilgiri-Wynaad are common to all three divisions of the Wynaad, but I think this may safely be assumed. Eastwards, the Wynaad plateau merges insensibly into the table land of Mysore. There is nothing in the shape of a mountain range to prevent the extension of the Wynaad snakes into the

Mysore country. Here I think the climate is the barrier. When the moisture-laden clouds of the south-west monsoon strike the Ghats, they part at once with most of the contained water, and the rainfall during this period on, and in the immediate vicinity of the Ghats, is 250 inches at least. As the clouds pass inland, they discharge the rest of their contained moisture in a comparatively short distance, and so the south-west rains do not extend very far inland. Every mile you go east from the Ghats makes a difference of 10 inches or more. Nilgiri-Wynaad being further from the coast than South or North Wynaad, the rainfall is lighter. On our Ghats it is about 150 inches. I am not more than 5 miles from the Ghats in a direct line, yet my average drops to 90 inches. Estates lying east of Rockwood, and only about 2 miles away as the crow flies, get about 65 inches. And not much farther east still, the south-west monsoon peters out altogether. So, adjacent to Wynaad on the east there is a zone of the Mysore country where the annual rainfall is only about 40 inches, part received during the south-west monsoon, and part during the north-east monsoon. This makes a great difference in the physical aspect of the two zones, and an equally marked difference in the climate. The western face of the Ghats, exposed to the full force of the south-west monsoon, is mighty evergreen forest. On the Wynaad Plateau, this gives place to deciduous jungle, largely interspersed with bamboo. Directly the east limit of the monsoon is reached, the country changes completely, and becomes open and dry. In South-East Wynaad the climate can rightly be described as temperate—on Rockwood in the hot weather (March, April and May) the thermometer never climbs much over 80. But to cross the boundary into the dry Mysore country means a transition almost to the climate of the plains. It is this marked and sudden difference in rainfall, vegetation, and climate (which would mean a different habitat), that may I think account for the fact that the Wynaad species do not extend into Mysore. These views are crude, and very possibly in some respects they are erroneous. The western half of the Nilgiri Plateau is much higher than the eastern half: the Dodabetta ridge cuts the plateau in half, and forms a barrier between the east and west halves; and the rainfall is far heavier in the western half. The latter gets most of its rain during the south-west monsoon; the Coonoor or Eastern belt depends chiefly on the north-east monsoon."

The map illustrating the terrain referred to is a reduced reproduction of that given by Mr. F. W. F. Fletcher in his highly interesting and charmingly written book "Sport on the Nilgiris."

Altogether 1,699 snakes came in, of which 831 were collected in the Wynaad. This large total comprises 43 different species, one of which *Typhlops fletcheri* can be claimed as new to Science.



MAP II.—GENERAL SCHEME OF MOUNTAIN RANGES.

NILGIRI SNAKES.

Several of these species are of course not truly montane. All of the species found in the plains of Southern India ascend to varying altitudes in the hills. In addition to the snakes I collected this year in the Nilgiris I had the good fortune to acquire a collection made by the late Mr. Grey from the same locality amounting to about 180 specimens. There was nothing rare among them, but they furnished a few interesting notes on food and breeding.

The following synopsis shows the numbers and localities from which they were collected :—

NILGIRI WYNAAD.

Serial Number.	Name of Species.	Rookery Estate 3,800 to 4,500 ft.	Adderley Estate 3,000- to 6,000 ft.	Hill Grove 3,000 to 5,700 ft.	Glendale 5,000 to 5,500 ft.	Coonoor 5,700 to 6,300 ft.	Frith Hall 5,400 to 6,300 ft.	Pilloor 3,000 to 5,800 ft.	Kalhatti 6,300 ft.	Lidalsdale 6,500 to 7,000 ft.	Hope 3,600 to 5,700 ft.	Rockwood 3,800 to 4,000 ft.	Mayfield 3,000 to 3,500 ft.	Wentworth 2,000 to 3,000 ft.	Total.
1	Typhlops fletcheri		1					2							6
2	„ beddomi							1							1
3	„ thurstoni														3
4	Rhinophis sanguineus										2	40		1	43
5	Silybura ocellata									4	99	2			106
6	„ brevis		4								22	38		2	62
7	Plectrurus perroteti			1		4	93	23					3		130
8	Melanophidium wynadense									1	19	8			28
9	Tropidonotus piscator	3			6	2		3			14	5	1		43
10	„ beddomi	3	27	2				19		12	30	14			157
11	„ stolatus		4		15	1	2	24			3	3			52
12	„ monticola plumbicolor										5	8			13
13	Macropisthodon	2	27	2	3	8		51	9	2			1	1	106
14	Rhabdops olivaceus									1	3	1			5
15	Xylophis perroteti		29	3		3	2	4	10	2					61
16	Lycodon aucteus					3		2			1				7
17	„ travancoricus		11	1	2	4		11		1	17	16			65
18	Zaocys mucosus	1	14	1		7		5		1	50	4			84
19	Coluber helena	3	24	3	3			50		3	11	7		2	167
20	Dendrelaphis tristis							6							6
21	Oligodon venustus		6	1	3			12	1	1	6				30
22	„ affinis										8				11
23	„ subgriseus							1		5	31	10			47
24	Ablabes calamaria							1				4			5
25	Dipsadomophus tiogonatus						2	1							3
26	„ ceylonensis							1		6	33				40
27	„ nuchalis		3					8			20	7	3		41
28	„ forsteni							1							1
29	Dryophis perroteti								6	34	18				57
30	„ mycterizans	1	11					28		1	21	16	4		83
31	„ pulverulentus		1					1							2
32	Chrysopelea ornata	1	2					4							7
33	Bungarus cœrueus										2	3			5
34	Naja tripudians	1						1			9			1	12
35	„ bungarus							2							2
36	Hemibungarus nigrescens		12	1				3	1	4	28	7			53
37	Callophis bibroni											1			1
38	Vipera russelli		2					20			1	4	1		28
39	Echis carinatus							5							5
40	Ancistrodon millardi							11							11
41	Lachesis strigata		1		4			7		12	22				48
42	„ graminea							4			2				22
43	„ anamallensis		15	1				7		7	143	17	3		193
	Total	15	201	16	36	32	108	324	28	108	558	238	31	4	1,699

Family TYPHLOPIDÆ.

GENUS TYPHLOPE.

Fletcher's Blind Snake—*Typhlops fletcheri* (spec. nov.)
(After Mr. F. W. F. Fletcher of Rockwood).

Specimens of a *Typhlops* very like *braminus* were collected for me from Adderley, Pilloor, and Rockwood. They differ however from *braminus*, in that the suture below the nostrils passes to the 2nd labial instead of to the præocular. Although this is the only difference I can find, it is sufficiently important, I think, to claim for this the rank of a species apart from *braminus*. Of the hosts of true *braminus* I have examined I have never met with a specimen in which the lower suture from the nostril was aberrant, and all the species of the genus I know show wonderful constancy in the condition of the nasal shield, the nostril, and the sutures proceeding therefrom. It would be interesting to know if the many specimens in the British Museum referred to *T. braminus* collected by Colonel Beddome from the Anamallay and Tinnevely Hills, have the peculiarity now pointed out by me.

Description—*Rostral*.—About one-third the breadth of the head, extending back to the level of the eyes. *Nasals*.—Not meeting behind the rostral; completely divided; the suture below the nostril shorter than that above, and passing to the 2nd labial. *Præfrontal, frontal* and *interparietal*—Subequal. *Supraocular, pre* and *postparietals*—Subequal. *Præocular*—About as large as the ocular; in contact with the 2nd and 3rd labials. *Ocular*.—Large, in contact with the 3rd and 4th labials. *Suboculars*.—None. *Temporal*.—One. *Labials*.—Four. *Costals*.—In 20 rows.

The eye is beneath the suture dividing the ocular and supraocular shields, and is distinct. The nostril is inferior. The tail ends in a small acute spine. The diameter of the body is $1/40$ to $1/45$ the total length.

Colour.—Dark uniform purplish-brown above paler beneath, where the scales are pale brown except in the basal third which is deep plum coloured.

Length.—Three apparently adult specimens measure respectively $5\frac{7}{8}$, $5\frac{5}{8}$ and $5\frac{3}{8}$ inches. One younger is $4\frac{1}{2}$ and two others $2\frac{3}{4}$ inches.

Habitat.—The Nilgiri Hills at an altitude of about 3,000 to 6,000 feet.

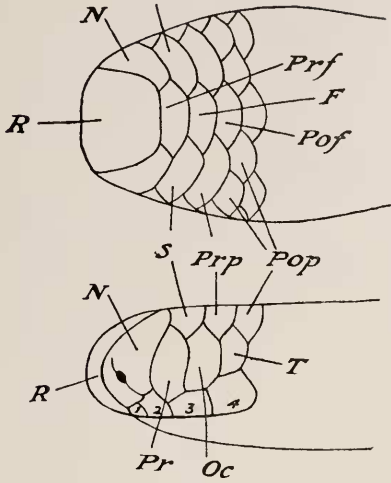
Beddome's Blind Snake—*Typhlops beddomii* (Boulenger).

I obtained one specimen only of this little known species from Pilloor and this was recovered from the stomach of a small *Hemibungarus nigrescens*. It measured $5\frac{1}{2}$ inches.

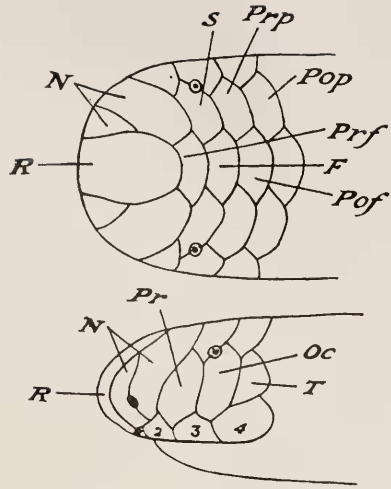
As the specimen is damaged from digestion there is an element of uncertainty in the identification. The following points which can be clearly made out point to the specimen being Beddome's blind snake, *viz.*, the rostral is about one-third the width of the head, the nasals meet behind the rostral, are quite divided, and the lower suture from the nostril is about three or four times as long as the upper. Scales in 18 rows. Diameter of body is about $1/42$ the total length. On the other hand the lower suture from the nostril passes directly backwards to the præocular (Boulenger's plate in his catalogue, Vol. I, 1893, Plate 1, fig. 3, shows this passing to the 2nd labial). The eyes are invisible. The colour is a pale flesh tint. If the identification is correct this is the first record of this species in Hills North of Palghat Gap.

Thurston's Blind Snake—*Typhlops thurstoni* (Boettger).

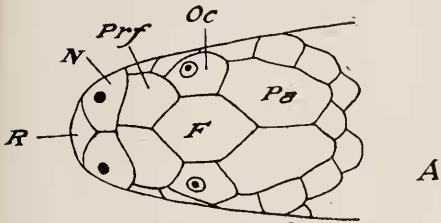
When Boulenger's Catalogue appeared there were only two specimens in the British Museum. It is satisfactory to record that I have now obtained three more good examples, all from Rockwood Estate, Wynaad.



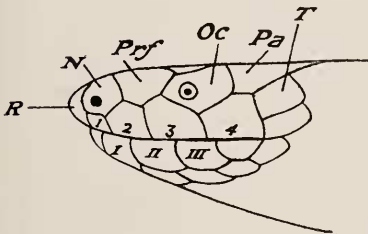
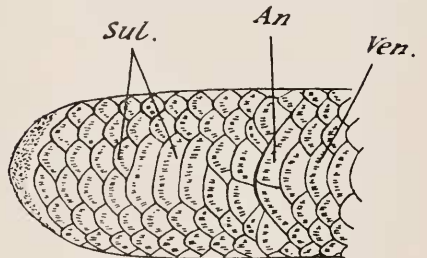
TYPHLOPS THURSTONI (× 5)



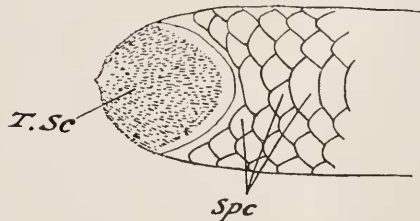
TYPHLOPS FLETCHERI (× 6)



A



B



A.—Ventral aspect of tail.

B.—Dorsal aspect of tail.

MELANOPHIDIUM WYNADENSE (× 2½)

RHINOPHIS SANGUINEUS (× 2)

They agree very well with the description given in *Boulenger's Catalogue* (Vol. I, p. 26) except that my specimens are much more slender, the diameter of the body being respectively about $1/75$, $1/64$, and $1/82$ the total length.

My specimens measured $12\frac{1}{2}$, $10\frac{1}{4}$ and $9\frac{3}{4}$ inches.

I give two drawings of the head shields.

Family *UROPELTIDÆ*.

Beddome's Shieldtail.—*Rhinophis sanguineus* (Beddome.)

All my specimens, 40 in number, came from the Wynaad where it is evidently a common species.

Food.—Many contained fragments of earth worms in the stomach, and the intestines were nearly always loaded with semi-liquid mud from their victims' alimentary systems. The fact that the worms were found in fragments suggests that when seized they break themselves free by their struggles, only to be recaptured, and repeat the process.

Sexes.—Of 35 sexed 16 were ♀ and 19 ♂. The following sexual differences were noted. In females the body is rather longer and the tail shorter than in the male. This is seen by the ventrals in the former ranging from 214 to 218 against 200 to 213 in the male, and the subcaudals numbering 5 to 7 in the female against 9 to 11 in the male. In the male also the last ventrals, the last scales in the lowest 3 rows of costals, the anal, and the subcaudal shields are pluricarinate. The keels are rather indistinct, and only seen on a subterminal zone on these shields (see figure). There is no trace of these keels in the female.

Breeding.—Although I got no gravid ♀, many juvenile specimens with open navels prove that the young embark on life late in July, August, and September.

Growth.—No less than eleven were young of the year, and varied in length from $4\frac{3}{4}$ to $5\frac{1}{2}$ inches. No specimen between $5\frac{1}{2}$ and 10 inches was obtained so that it would appear that the young double their length in the first year of life. Nearly all the specimens were from 11 to 13 inches long. One ♀ measured 16 and one ♂ 14 inches. The rule in Colubrines is for the young to be about one-fourth the average adult measurement.

Colour.—No young specimens were brightly marked with coral-red ventrally. Only a faint tinge of pink was seen until adult life in this region.

Lepidosis.—In most specimens several of the subcaudal shields were entire.

The skin strips off this snake as easily as from others, except on the end of the tail. Here the modified skin on the terminal scute is so intimately adherent to the terminal vertebrae, that it is only removed with considerable difficulty.

Dentition.—The maxillary teeth number 5. There are no teeth in the palatine, and pterygoid bones. The mandibular set number 5.

The Argus Roughtail.—*Silybura ocellata* (Beddome).

This is an even commoner species than the last in the Wynaad (including Liddelsdale), my aggregate being 101. No specimen reached me from any other locality.

Food.—This consists entirely of earth worms, and the remarks made under the diet of the last species apply equally well to this snake.

Disposition.—I had a few live examples sent me, and I found them all very inoffensive creatures. They are rather restless in one's grasp, and push their noses through and through the clefts of the fingers. I put them on to loose earth, and found sometimes they would burrow, and at other times they remained inert, making no attempt to glide away. They move very slowly. Those that burrowed used the snout only for this purpose, and I am still perplexed as to the use of the curious tail. This is so often

coated with mud when other parts of the snake are not, that I had expected the use of this appendage in some way whilst probing beneath the soil.

The sexes.—Of 23 that were sexed 16 proved to be ♀ and 7 ♂. The tail in the male is longer, the subcaudals numbering 9 to 11, against 7 to 8 of the female, but the body is but little shorter in the male. The male ventrals numbered 185 to 196 as compared with 194 to 208 (usually over 200) in the female.

Breeding.—I had two gravid females captured between the 20th of June and 10th of July. One measuring 11 inches contained 3 sacs with well developed embryos about $4\frac{3}{8}$ inches long. The other measuring $14\frac{1}{2}$ inches contained 5 sacs in which embryos $4\frac{1}{2}$ inches long were observed. A few young of the year measuring from 5 to $6\frac{1}{2}$ inches reached me in July and August.

Length.—I had four females 15 to $15\frac{3}{4}$ inches long, and my largest males measured 13 and $13\frac{1}{4}$ inches, respectively.

Dentition.—Maxillary set 4 or 5. Palatine and pterygoids edentulous. Mandibular set 6 or 7.

The Common Roughtail—*Silybura brevis* (Gunther).

All my specimens, 59 in number, came from the Wynaad.

Habits.—The few live specimens sent to me were as inoffensive as the last species. In captivity it burrowed with the aid of the snout alone, and nothing in its behaviour suggested any special use for the stumpy curiously-fashioned tail. In this species again I repeatedly noted that the top of the tail was clogged with earth when none was adhering to other parts.

Food.—Most examples contained fragments of earthworms in the stomach. The overloaded condition of the intestines with liquid mud gave one an idea of the heavy toll exacted from the ranks of its fellow sojourners beneath the soil.

Sexes.—Of 26 examples in which the sex is recorded, 14 were ♂ and 12 ♀. I was unable to discover any external characters to differentiate the sexes. Females as usual attain to a greater length, no less than 10 examples reaching or exceeding 11 inches, whereas only one male had acquired this length. My largest female measured $16\frac{1}{4}$ inches, and my largest male 12 inches.

Breeding.—I had no single gravid female, but the season for the appearance of the young is evidently from June to August. I had 21 young varying from $3\frac{3}{8}$ to $5\frac{1}{2}$ inches from the end of June onwards. They probably grow three inches in the first year as twelve specimens ranged from $6\frac{3}{8}$ to $8\frac{3}{8}$ inches.

The young examples I noticed had no trace of the terminal points, that one sees so well developed in the adult, and the supracaudals are less evidently carinate.

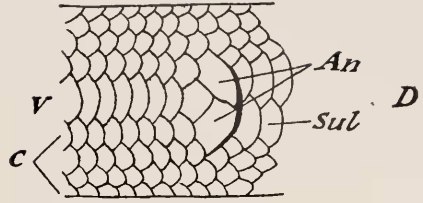
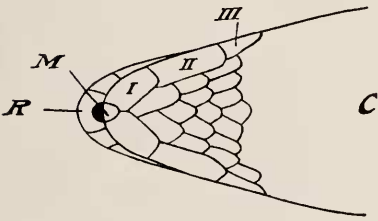
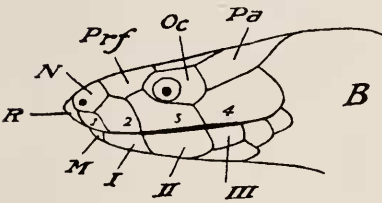
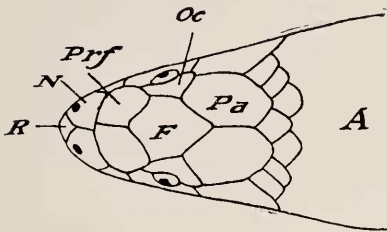
Lepidosis.—The range of ventrals I found to be 133 to 145 for the ♂ and 139 to 143 for the ♀. The subcaudals in the ♂ being 9 to 12, and in the ♀ 9 to 10. One specimen had the 7th, 8th and 9th subcaudals entire.

The skin strips off easily everywhere except on the truncate part of the tail. Here the epidermis is thicker than elsewhere, and intimately adherent to a cushion of deep musculature. Within this no osseous thickening is to be observed but the vertebrae are probably peculiarly Uropeltid.

Dentition.—The maxilla holds from 5 to 6 teeth. The palatine and pterygoid are edentulous. The mandibular array is 7.

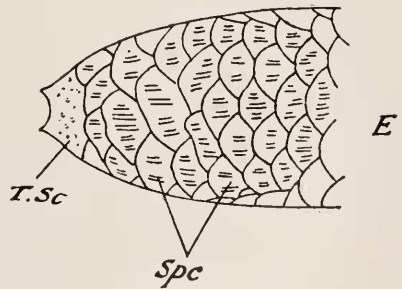
Perrotet's Spinetail—*Plectrurus perroteti* (Dumeril and Bibron).

Boulenger in his Catalogue (Vol. I, p. 162) under the heading *P. davisoni* suggests that this species may have to be united with *perroteti*. I think there is no question that *davisoni* cannot be retained as a species apart. No less than 135 examples of this snake came into my hands, and from



D.—Ventral aspect of tail.

E.—Dorsal aspect of tail,



SILYBURA BREVIS (× 3)

NILGIRI SNAKES

this large material I am also inclined to doubt the validity of the other two "species," viz., *guentheri* and *aureus*. Without however studying the type specimens it is wisest to say no more.

Habits.—Several live specimens were brought in, some having been encountered crossing the roads, and showing so little alarm at the approach of footsteps as to permit easy capture. In one's grasp it glides through the fingers restlessly and slowly without attempting to bite. One wreathed itself round a stick that was placed over it, and was carried so, for a mile or more without relaxing its folds. It exhibits considerable strength when wreathed round one's fingers.

Put into loose earth it burrowed with its nose so as to conceal its head, frequently leaving most of the body uncovered. No use was made of the tail while burrowing.

Sexes.—Of 38 sexed, 28 were found to be females and 10 males. I could discover no external differences to distinguish the sexes.

Breeding.—It is viviparous in habit. I obtained four gravid females between the 29th of June and the 3rd of August. In a specimen captured on the 29th of June six embryos were found measuring about 3 inches. In another between the 1st and 4th of July four embryos measuring about 2 inches long were observed. In a third caught on the 8th of August three young were found, all males, $4\frac{1}{16}$, $4\frac{1}{4}$ and $4\frac{1}{4}$ inches long. The fourth killed between the 1st and 3rd of August contained three foetuses (two of which were males, and the third of uncertain sex one of which measured $3\frac{1}{16}$ inches). The young escaped from one mother partly by their own movements when she was cut open. A specimen in Gray's collection, date of capture unknown, contained six eggs.

I have always been puzzled to know when the genitals of male foetuses became ensheathed. Up to a certain period they are found extruded before birth. I was able to observe that in the three most advanced foetuses ripped from their mother, although males (ventrals and sub-caudals 166+12, 167+12 and 167+11), the genitals were no longer extruded so that the ensheathing takes place before birth. The mothers varied in length from 11 to 14 inches.

The season of birth is from June to September. I obtained 3 specimens $4\frac{3}{8}$, $4\frac{5}{8}$ and $5\frac{1}{4}$ inches long in June, and as many as 15 varying from 4 to $4\frac{3}{4}$ inches in September. As many as 40 specimens of this year's production were collected.

Food.—Earthworms form its exclusive dietary, many of these being found in fragments "in gastro". The intestines were almost always filled with liquid mud.

Colour.—In some specimens there is a bright carrot red hue on the centres of the scales of the belly and beneath the tail instead of the usual mustard-yellow. In the young a pale pinkish shade replaces these brighter hues.

One specimen furnished me with several white vermiform parasites which appeared to me identical with the *Porocephalus crotali* so frequently found infesting the abdominal cavity of Colubrines. One of these was half obtruded from the cloacal orifice which would make it appear an interalimentary parasite, sometimes though usually found attached to the walls of the abdominal cavity, or outside the various viscera.

Lepidosis.—The ventrals in the ♂ varied from 160 to 167, in the ♀ from 162 to 181. The subcaudals in the ♂ from 9 to 12, in the ♀ 6 to 8.

Habitat.—It is an extremely common snake between 5,000 and 6,000 feet, and gets scarcer as one approaches 3,500 feet. This accounts for the small number (only five) of specimens from the Wynaad.

Dentition.—The maxillary teeth number 7. There are no palatine, and no pterygoid teeth. The mandible holds 6 or 7.

The Black Burrowing Snake—*Melanophidium wynadense* (Beddome).

This species is apparently less rare than museum collections would make it appear. I managed to obtain 26 specimens, though the British Museum has only 3 representatives.

Sexes.—No external differences to denote the sex were observed by me. Of 8 sexed, 5 were ♂ and 3 ♀.

Food.—Earthworms form the exclusive diet, most specimens having fragments of these in the stomach. The intestines were loaded with liquid mud.

Breeding.—No gravid female was secured. Young of the year measuring from 5 to 6½ inches were obtained in July (4), August (2) and September (3).

Length.—My longest taped 17 inches and was a ♂. I had two other males of 16½ and 16¾ inches in length, and a female 16¼ inches long.

Colour.—The irregularly-distributed, light, ventral patches were quite white, not yellow as supposed by Boulenger.

Lepidosis.—The ventrals ranged between 170 and 184, and the subcaudals between 10 and 13. No sexual differences can be established.

Habitat.—All were captured in the Wynaad.

Dentition.—There are 8 maxillary teeth. The palatine and pterygoid bones are edentulous. The mandibular teeth number 8.

Family COLUBRIDÆ.

SUB-FAMILY COLUBRINÆ.

The Chequered Water Snake—*Tropidonotus piscator* (Schneider).

Forty-three examples of this common snake reached me. Mr. Oakes sent me two from his garden near Ootacamund at 6,300 feet elevation. This is a remarkable altitude to find a denizen of the Indian Plains flourishing.

Food.—Many had recently fed and in every case a frog had been taken. An *Ixalus* (Spec?) once, *Rana limnocharis* three times, (one specimen having devoured four small ones), and in three other examples the frogs were too digested to identify.

Young.—Three young of the year were obtained in June varying from 7¾ to 8¾ inches in length, five in July from 9 to 11 inches, eight in August from 9¼ to 13½ inches, and two in September from 11 to 11½ inches.

Varieties.—All were marked with small, and ill-defined, dark, chequering, some being nearly uniform in colouration. In some a pale chequering was more evident than the dark. Several were adorned with a bright pinkish suffusion at the edge of the ventrals, and some with bright rose chequering in the flanks. These bright hues were seen in young of the year, as well as adults, and one young specimen of 7¾ inches showed a bright canary throat, this hue extending to the sides of the neck. The entozoon *Kalliocephalus willeji* was seen in large clusters in the stomachs of nearly all.

Beddome's Grass Snake—*Tropidonotus beddomei* (Gunther).

This species seems to be equally common throughout the Nilgiris, and the Wynaad, one hundred and fifty-seven specimens having been collected. It will be seen from the synopsis that it inhabits a zone between 3,000 and 7,000 feet.

Sexes.—Of 123 specimens sexed, 54 were ♂ and 69 ♀.

Food.—Frogs proved the favourite diet, but occasionally small toads were taken. Fifteen examples were found to have swallowed frogs, and twelve of those had feasted on species of *Ixalus*. On three occasions two *Ixalus* were found, on one three, and on one four. In other cases the frog was too far digested to identify. In one specimen I found a mass of frog's eggs, with the prospective mother in a state of dissolution. Once I found a young *Bufo melanostictus* and once the legs of a toad that was probably the same species. This diet sheds light on the haunts of

Beddome's grass snake for *Ixalus variabilis* by far the commonest species, I found inhabiting marshy ground, or water cuts where arum lilies and wild caladiums grew. The hollow stems of these plants where they embrace the stalk were found tenanted by this frog in great numbers.

Breeding.—Many examples were egg-bound, and these are best tabulated. It will be observed that of the 21 gravid females, $16\frac{1}{2}$ inches was the smallest length, and $27\frac{1}{4}$ inches the largest. From 5 to 9 eggs are usually produced, but they varied from 3 to 11. The embryos attain some degree of development before oviposition. It will be seen later that young of the year commenced to appear in June, and continued to the month of September. The fact that many females were egg-bound in the latter month shows that the season for the young to hatch extends probably to November.

Date.	Length of mother in inches.	No. of eggs.	Remarks.
20-6-17 to 5-7-17.	21	6	Eggs, $\frac{3}{4}$ " to 1" in length.
"	$16\frac{1}{2}$	5	
"	$19\frac{3}{4}$	6	Eggs, $\frac{3}{4}$ " to 1" in length.
7 to 10-7-17.	22	9	Eggs, $\frac{3}{4}$ " to 1" in length.
10 to 25-7-17.	$17\frac{1}{2}$	7	Tail deficient. Eggs, 1" long.
"	$18\frac{3}{4}$	6	
25-7-17 to 3-8-17.	22	8	Eggs, 1" long, with minute embryos inside.
1 to 3-8-17.	$27\frac{1}{4}$	8	
1 to 6-8-17.	$20\frac{1}{2}$	3	
6 to 12-8-17.	....	7	
"	$20\frac{1}{4}$	10	
"	18	5	Eggs about 1" long with minute embryos inside.
12 to 24-8-17.	....	7	
"	....	8	
15 to 18-8-17.	$24\frac{1}{4}$	7	
15 to 20-8-17.	$23\frac{1}{2}$	6	Follicles enlarged, not much advanced.
"	....	8	
"	....	7	
9 to 11-9-17.	25	9	
17 to 23-9-17.	....	8	
1 to 20-9-17.	....	11	

Growth.—Seventeen young of the year varying from $5\frac{1}{2}$ to 10 inches were captured in the months of June to September, both these outside measurements occurring in the last month. Nothing longer than 7 inches was procured before September though eight of this year's progeny were caught before this month. Seventeen other specimens between $14\frac{3}{4}$ and $17\frac{1}{2}$ inches were secured, evidently last year's production, but the lengths exceeding $17\frac{1}{2}$ inches are so gradually, and evenly progressive, that it is impossible to follow the growth any further. The largest specimen was a ♀ $27\frac{1}{4}$ inches in length, and the average of the six largest of this sex was 25 inches against 22 inches for the average of the six largest ♂. The largest ♂ measured 25 inches.

Lepidosis.—The ventrals, and subcaudals were only noted in a few cases and show no difference in the sexes. Thus in the ♂ the ventrals were 141 to 150, in the ♀ 139 to 147. The subcaudals in the ♂ were 69 to 81, and in the ♀ 62 to 81.

Dentition.—The maxilla holds from 24 to 25 teeth behind which is a gap followed by 2 teeth fully twice the length of the preceding. The palatine teeth number 18 to 19, the pterygoid 33 to 38, and the mandibular 32 to 33.

The Buff-striped Keelback.—*Tropidonotus stolatus* (Linnè).

In all 52 specimens of this snake reached me. It is evidently a fairly common species up to 5,000 feet and occurs up to about 6,000 feet. Being a snake of the Plains it was to be expected that it would be found in the Wynaad as plentifully as in other parts of these Hills. Seven of the total were of the "red" variety, vermilion hues replacing the pale blue seen in usual specimens. This beautiful ornamentation was seen in three quite juvenile examples measuring respectively $8\frac{3}{8}$, $11\frac{3}{8}$ and 11 inches.

Breeding.—Five gravid females were included all captured in July, August, or September. The smallest dam measured 17 inches, and the largest $28\frac{1}{2}$ inches. The clutches of eggs varied from 3 to 10. In one case the eggs were found to contain minute embryos which if unravelled might have been about one inch long.

Food.—Of the many that had but recently fed, two contained frogs with dilated toes that I think were *Rana temporalis*, three contained frogs too digested to recognise, and nine others species of *Ixalus*. One of these last had swallowed no less than six of this small batrachian.

Growth.—Twelve specimens were young of the year ranging between $6\frac{1}{2}$ and $8\frac{7}{8}$ inches during the months from June to September. The growth of the species is difficult to follow as the breeding season probably lasts during half the year.

Jerdon's Grass Snake.—*Tropidonotus monticola* (Jerdon).

All the 13 specimens of this uncommon snake were caught in the Wynaad. Unfortunately most were very juvenile, and some had their tails more or less deficient. The largest adult, a ♀ measured $22\frac{3}{4}$ inches.

Colour and markings.—In one young specimen there was a very bright yellow collar, and in all the specimens the throat and sides of the neck were yellow. This hue was replaced by a bright orange in the adult. Most of the supralabials had narrow blackish margins. The cross bars are sometimes very obscure, even in quite young specimens.

Food.—Three had their stomachs distended. A *Bufo melanostictus* had been taken by the large ♀, and a *Rana limnocharis* by two other examples.

Growth.—Seven of this year's production taken from July to September

varied from $6\frac{1}{4}$ to $7\frac{3}{4}$ inches in length. Two others of 12 and $14\frac{1}{4}$ inches respectively, taken in September were evidently last year's broods, so that it about doubles its length in the first year of life.

Lepidosis.—In one the 7th labial was confluent with the lower temporal and did not descend to the margin of the lip. The postoculars were 4 on one side in one specimen, and the temporal single on one side in one specimen. The ventral count ranged between 133 and 141, and the subcaudal between 78 and 88.

The Green Keelback.—*Macropisthodon plumbicolor* (Cantor).

Mr. Verne de tells me his coolies call it "pacha naga" ("green cobra") a very appropriate name when one considers the degree to which it can flatten the neck cobra-wise.

This is one of the commonest snakes in the Hills, 106 examples having been collected. It favours an altitude between 3,000 and 6,000 feet; and was quite common at Kalhatti at 6,300 feet. Only 2 specimens came in from the Wynaad side out of the large total collected there. Of 39 sexed, 26 were ♂ and 13 ♀.

Colour.—The verdant-green hue is not due to a green pigment. It is due to a yellow pigment that overlies the scales as a sort of varnish, and which is soluble in spirit leaving the specimen blue. Some specimens are darker than others due to the varying abundance of the yellow pigment, and in these the scales are plumbeous when the pigment is removed. The inappropriate specific name *plumbicolor* is thus accounted for. The remarks made on the colour of the snake *Dryophis mycterizans* apply equally well to this species. I skinned a few, cleansed them in my bath with soap and water and placed them in spirit. In a few days a very distinct yellow tinge was imparted to the liquid, and as I boiled it down the colour became deeper and deeper, but I could not separate it out as a powder.

The skin strips easily as is usual with snakes. It is slate coloured on the inner side, and the integument around the last three or four costal rows is white. Short white lines are scattered through the skin becoming fewer up the sides of the body. Another very curious peculiarity I have seen in no other snake. I allude to an arrangement of small, extremely regularly-disposed, series of ring-like spots, on either side of the 9th and 10th costal rows above the ventrals. These are placed at the angles of the scales referred to, are in the integument itself, and if looked for can be seen from the epithelial surface. Where the rows in midbody are 25, five rows intervene vertebally between these spots, and where 27, seven rows.

Food.—A remarkable partiality in diet is shown towards the toad *Bufo melanostictus*. No fewer than ten had swallowed this batrachian, and two of these were quite young specimens. One adult had accounted for two, and another for three large specimens. In some cases the distension was extraordinary. For instance a snake measuring three inches in girth was five and a quarter inches round the gastric region, and found to contain a toad with a head fully twice the transverse diameter of that of the host's! Frogs were taken by three examples, once *Ixalus variabilis*, and once a species probably of *Ixalus*.

Breeding.—It seems rather remarkable that no single specimen proved gravid. I have definitely ascertained (and reported in this Journal, Vol. xvi, page 390) that the young hatchling varies from $5\frac{3}{8}$ to about $6\frac{1}{2}$ inches. I got one measuring $6\frac{5}{8}$ inches in August, and twenty others, young of the year, varied from $7\frac{1}{4}$ to 10 inches in the months of August and September.

Growth.—What I take to be last year's broods were represented by two specimens 15 and $15\frac{3}{4}$ inches long. My largest example measuring 33 inches was a ♀, another of the same sex was $31\frac{1}{2}$ inches, and a third $29\frac{1}{4}$ inches. The largest ♂ was $29\frac{1}{2}$ inches.

Parasites.—I found two young specimens infested with small scarlet mites (*Trombidia*) which had fastened themselves chiefly on to the skin between the ventral shields. These I submitted to Dr. Annandale.

Dentition.—The maxilla holds 12 teeth after which there is a short gap, followed by two large teeth more than twice the length of the preceding. The palatine teeth number 7, the pterygoid 13 to 14, and the mandibular 16 to 19.

The Olivaceous Smooth Snake—*Rhabdops olivaceus* (Beddome).

Five specimens of this uncommon species reached me, all from the Wynaad. The belly is a dirty yellowish hue peppered with olive-green especially at the bases of the ventrals; and subcaudals. A black narrow zigzag line runs along the ventrals. Three were ♂ and two ♀.

Breeding.—My largest example captured in September was gravid. Eleven follicles (five in one ovary and six in the other) being distinctly enlarged. The specimen measured $30\frac{3}{4}$ inches.

Lepidosis.—The ventrals in the males ranged between 210 to 213, in the females 202 to 207. The subcaudals in the males ranged between 69 and 74, and in the females 63 to 64. The præoculars (two, Boulenger Cat. Snakes Brit. Mus., Vol. 1, page 300) are subject to variation. In three specimens the loreal by a confluence with the lower præocular touched the eye, and in one specimen the præfrontal touched the eye owing to the confluence of this shield with the upper præocular, in addition to the confluence of loreal and inferior præocular. This is the subject figured by me.

Perrotet's Dwarf Snake—*Xylophis perroteti* (Dumeril and Bibron).

Of the 61 specimens collected many came from the Wynaad. It is common at an altitude above 5,000 feet as will be seen from the numbers taken at Kalhatti, Frith Hall and Coonor. Mr. Rogers too told me that his specimens were all taken from the higher parts of his estate. Of 47 sexed 18 were ♂ and 29 ♀.

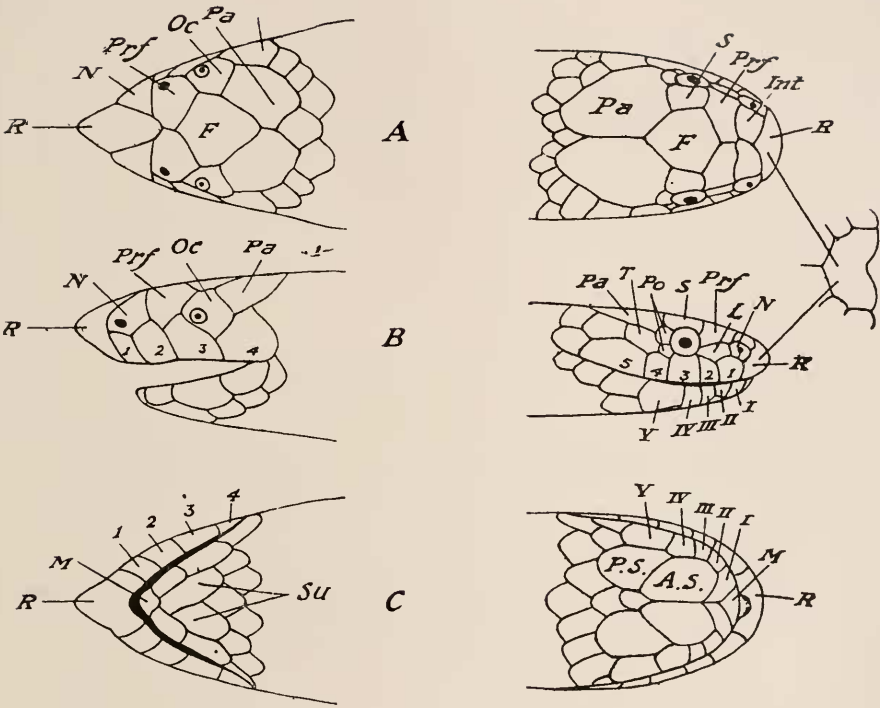
Food.—It subsists entirely on earth worms, and every specimen opened had either fragments of worms in the stomach, or the intestinal tracts loaded with mud from this diet. One specimen 21 inches in length was found to contain a very large worm (*Moniliventer grandis*?) $12\frac{1}{2}$ inches in length lying fully extended in the gullet and stomach.

One specimen 20 inches in length was recovered from the stomach of a *Hemibungarus nigrescens*.

Breeding.—Four gravid females were included in the total, all killed in July. They varied in length from 17 to 21 inches. The eggs found within numbered from 6 to 12 and contained minute embryos estimated at about one inch long if unravelled. The eggs were one to one and a half inches long. One specimen contained a single large unfertilised egg. I think the eggs are probably deposited as such, but cannot speak positively.

Growth.—I had eight young of the year ranging between $5\frac{1}{4}$ and 8 inches in June, July and August. Fifteen other examples between 12 and 16 inches were probably last year's brood. The ♀ attains to a greater length than the ♂. I had no ♂ specimen exceeding 20 inches but six ♀ were 21, 21, $21\frac{3}{4}$, $23\frac{1}{2}$ and $23\frac{3}{4}$ inches long, respectively.

The tail is distinctly longer in the ♂.



RHINOPHIS SANGUINEUS
(× 3)

RHABDOPS OLIVACEUS.
(× 1½)

Lepidosis.—The ventrals and subcaudals show definite ranges in the sexes; thus the ventrals in the ♂ ranged between 133 and 141, in the ♀ between 143 and 150. The ♂ subcaudals were 25 to 40, and the ♀ 14 to 20.

Dentition.—The maxilla supports 28 to 31 teeth. The palatine array vary from 14 to 18, the pterygoid 32 to 34, and the mandibular 26 to 31.

The Common Wolf Snake—*Lycodon aulicus* (Linne).

Only 7 of this very common snake were collected, showing that it does not favour the Hills. The highest altitude was 5,700 feet.

Varieties.—Three conformed to the usual variety *typica* of Linné, one to Boulenger's variety B, and three others I would place with Boie's Variety *unicolor* in spite of the fact that all had bright yellow collars from which a moustache-like stripe of the same shade was thrown forward to meet in front of the rostral. Otherwise these very strikingly handsome specimens had no trace of marks. The body was a very deep purplish-brown almost chocolate. These three specimens came from Coonoor, the cart road below Coonoor, and from Pilloor. I have never seen this variety before. In Boulenger's variety B, the crossbars were 11 and the first interval involved 27 scales vertebtrally. In the typical variety the bars ranged from 15 to 25.

Food.—One had eaten a skink which I think was a *Mabuia*.

Lepidosis.—In the two specimens of *unicolor* (Boie) where the ventrals and subcaudals were counted they were ♀ 227 and 69, and 222 and 67 (?). In Boulenger's variety B these shields numbered 179 (?) plus 62.

The Hill Wolf Snake—*Lycodon travancoricus* (Beddome).

The 65 specimens collected were as common in the Wynaad as in the Nilgiris. The species is found up to 6,000 feet, and beyond. Three or four of those brought in came with an account of having been killed inside houses in Coonoor.

Sexes.—Of 31 in which I have recorded the sex 21 were ♂ and 10 ♀.

Colour.—All the specimens that reached me freshly killed had the crossbars, and variegations in the flanks of a bright yellow colour. The yellow in all *Lycodonts* is very unstable, losing its colour after a few hours immersion in spirit.

Food.—A large number had recently fed, and a great partiality is shown for a lacertine diet. Frogs of the genus *Ixalus* had on three occasions furnished the meal. The lizards were of varied sorts. Geckos had twice been taken, *Lygosoma* ten times, a *Mabuia* on three occasions, and a *Charasia* (probably *dorsalis*) twice. Two other lizards were too digested to recognise.

Breeding.—Not a single female specimen showed any enlargement of the ovarian follicles. The hatching season can be arrived at however in the following manner. This species grows to the same length as its congener *aulicus*, the young of which are known to be $6\frac{3}{4}$ to $7\frac{3}{4}$ inches long when hatching. Specimens within this range (of *travancoricus*) were captured in August and as specimens up to 11 inches were also bagged in the same month it is probable that they hatched out in May if not before. The season then is about May to August.

Growth.—Young of the year measuring $7\frac{1}{2}$ to $7\frac{3}{4}$ inches (2) were obtained in June, 8 to 11 inches (8) in July, 7 to 11 inches (11) in August, and $9\frac{1}{4}$ to 11 inches (4) in September. Ten other specimens in the same months ranging between 16 to $18\frac{1}{2}$ inches were obviously last year's progeny, and show that the young double their length in the first year of life.

Anal glands.—These glands furnish an opaque yellowish fluid.

Parasites.—One specimen was infested with little scarlet mites apparently similar to those already alluded to which had attached themselves to specimens of *Macropisthodon plumbicolor*.

Lepidosis.—The labials in one were 10 in number on the left side. The temporals in one were three anteriorly on the right side.

Dentition.—The maxilla supports anteriorly 3 teeth progressively increasing in size, then 2 elongate subequal teeth about twice the size of the 3rd. After these there is an edentulous space that would take about 3 teeth. This is followed by from 9 to 11 small isodont teeth after which come 2 more elongate teeth about twice the length of the preceding. The palatine array number 13 to 17, the pterygoid 21 to 27. The mandibles have anteriorly 3 progressively increasing teeth, and then 2 elongate about twice the length of the 3rd. A small gap that would take about 2 teeth is followed by a series of small isodont teeth numbering 19 to 20.

The Dhaman—*Zaocys mucosus* (Linné).

This species 88 of which were acquired is a fairly common snake even at 6,000 feet elevation. It is probable a very much larger number would have been sent me had I not stipulated that such a bulky snake was not to be included. Nearly all the specimens sent me were in consequence quite young.

Food.—I remarked in my popular article in this Journal dealing with this snake that it was a gourmand with very varied tastes. This is fully borne out by these specimens. One had eaten a mouse, four others frogs, too digested to recognise, one a single *Ivalus*, one four *Ivalus*, and another six *Ivalus*. One contained an *Ivalus variabilis*, and a skink of the genus *Maburia*. Another had swallowed a *Bufo melanostictus*, and a lizard of the genus *Lygosoma*.

Breeding.—There are no breeding events to chronicle, but a female 5 feet 10 inches in length, and in a very emaciated condition was killed in Coonoor on the 27th of June with a large swelling that proved to be an unfertilised egg. This measured $2\frac{3}{8}$ inches in length, and 1 inch in breadth, and weighed just under $\frac{2}{3}$ of an ounce. The hatching season in these Hills is evidently in the early months of the year probably March to May as may be judged by the dimensions of specimens brought in, coupled with the fact that this species is known to be about $14\frac{1}{2}$ to $15\frac{1}{2}$ inches when emerging from the egg. Young of the year measuring $19\frac{3}{4}$ to $20\frac{1}{2}$ inches (4) were captured in June, $17\frac{1}{2}$ to $20\frac{3}{4}$ inches (9) in July, 18 to 23 inches (19) in August, and $18\frac{3}{4}$ to 22 inches (6) in September.

The Trinket Snake—*Coluber helena* (Daudin).

One of the snakes called "kattu viriyan" (meaning "banded snake") by the Tamils. The total for this species was 107. It does not appear to favour an altitude above about 5,000 feet.

Sexes.—Of those in which sex is recorded 26 were ♂ and 18 ♀.

Food.—There were surprisingly few that had recently fed. A mouse had been swallowed by four examples, and masses of hair were found in the cloaca of a fifth. A frog of the genus *Ivalus* constituted the meal in one case.

Breeding.—No single ♀ showed any enlargement of the ovarian follicles. This may be accounted for possibly by my asking those helping me not to put large snakes into the tins supplied, as they take up so much room and expend so much spirit.

Growth.—Five young of the year ranging between 13 and 15½ inches were included in July, sixteen between 13 and 17¼ inches in August, and one 15¾ inches in September. Eleven other examples measuring from 20 to 23 inches were obviously last year's broods. Fourteen others from 30 to 39 inches seem to represent the progeny of the year before last. My largest was a ♀ 48½ inches in length.

Parasites.—Scarlet mites had attached themselves to two specimens, probably the same species already reported with reference to *Lycodon travancoricus*, and *Macropisthodon plumbicolor*.

Lepidosis.—The labials were 10 in one example with the 5th, 6th and 7th touching the eye. In one the 5th to the 9th subcaudals were entire.

One large specimen captured alive proved a very truculent creature to deal with. It buried its teeth in the butterfly net used to encompass its capture, and then got itself tied up in the net in a hopeless muddle.

Dentition.—The maxilla carries from 19 to 25 teeth, the palatine 10 to 14, the pterygoid 15 to 26 (? 30) and the mandible 22 to 30.

The Indian Bronze-backed Tree Snake—*Dendrelaphis tristis* (Daudin).

It is singular that this species which is so abundant in the Plains only furnished 6 representatives and it seems probable that they were from slopes below about 3,000 feet.

Sexes.—Three were ♂ and 3 ♀.

Food.—A frog of the genus *Ixalus* had been swallowed on two occasions.

Lepidosis.—The costals in all the ♂ reduced to 9 posteriorly, and in all the ♀ to 11. The ventral count for the ♂ was 179 to 181, and the ♀ 174 to 180. The subcaudal count for the ♂ was 133 to 159 and for the ♀ 145 to 154.

The Beautiful Kukri Snake—*Oligodon venustus* (Jerdon).

The 30 specimens procured show that the species favours an altitude between 5,000 and 6,000 feet and this probably accounts for the relatively few examples furnished by the Wynaad. It extends up to at least 6,500 feet.

The sexes.—Of 26 sexed, 12 were ♂ and 14 ♀.

Food.—Until this holiday in the Nilgris I had failed to discover the diet of the Kukri snakes as a group.

The few, and very minute teeth in the palatine, and pterygoid bones, seemed to indicate something peculiar in their choice of food, which I now find consists of reptilian eggs, frog's eggs, and snails. In two cases the stomach was distended with a mass of frog's eggs, in a third there were 16 eggs, and in a fourth 4 eggs, and a snail. In no case was any vestige of a frog ingested. Eggs of reptiles which may have been either snakes or lizards with soft shells had been eaten by four examples. In two cases a single egg was found, in one two eggs, and in a third three eggs. The size of these was about the same in each case being about ¾ of an inch in length. These eggs were invariably flat, and empty, and in some cases were found embedded in a mass of coagulated yolk, the nature of which puzzled me till I discovered an egg-case embedded therein. One specimen had swallowed a snail with a white shell very little damaged. In another amorphous masses were found of the consistency of a cooked meal

potato, and the nature of the material would have remained unsolved but for fragments of snail shell adhering. In one such mass small grits and the remains of insects were discovered evidently the contents of a snail's stomach.

Breeding.—No gravid ♀ came in, but from the measurements of young it would appear that the season for the appearance of the broods is June, and the closely preceding months.

Growth.—One young of the year $4\frac{1}{2}$ inches long reached me in June, and another $6\frac{1}{2}$ inches long in August. Four other juvenile examples ranging from $9\frac{1}{2}$ to $10\frac{1}{2}$ inches in August and September, I take to represent last year's broods. My largest specimens were a ♀ $19\frac{1}{2}$ inches and a ♂ 17 inches.

Lepidosis.—I found the loreal shield absent in 11 specimens on both sides, and in 3 others on one side. The 6th labial failed to touch the margin of the lip in 17 examples on both sides, and in 2 others on one side. In one the 6th and 7th labials were completely confluent. The ventral and subcaudal counts (including 5 ♂, and 8 ♀ specimens in the late Mr. C. Gray's collection) were, ventrals ♂ 142 to 152, ♀ 152 to 165. Subcaudals were ♂ 31 to 35, ♀ 27 to 34.

Dentition.—The maxilla supports 7 to 8 teeth progressively increasing from before backwards. The palatine has from 1 to 3 very small teeth in the middle. The pterygoid has from 4 to 8 teeth after an edentulous anterior space. The mandible has from 9 to 11 teeth.

The Wynaad Kukri Snake—*Oligodon affinis* (Gunther).

The Wynaad furnished all my 11 specimens.

Sexes.—Of 9 sexed, 4 were ♂ and 5 ♀.

Growth.—One example 4 inches long was captured in July. All the others were adults, the ♂ specimens ranging between $11\frac{1}{2}$ and $12\frac{3}{4}$ inches in length, and the ♀ between $10\frac{5}{8}$ and 13 inches.

Colour.—The young specimen was coloured exactly like adults. In adults the crossbars are narrow and well-defined, and numbered from 33 to 41.

Lepidosis.—Though the loreal is usually wanting I got two examples with a small loreal on both sides, and one with a loreal on one side. The labials were constantly 7, the 3rd and 4th touching the eye. The ventrals in the ♂ ranged from 135 to 140, and in the ♀ from 135 to 141. The subcaudals in the ♂ were 32 to 34, and in the ♀ 25 to 28. In at least 5 examples the costal rows had reduced from 17 to 15 at or before midbody.

Dentition.—The maxilla bears 17 teeth progressively increasing from before backwards. The palatine has 1 tooth about its middle. The pterygoid has 4 teeth with an edentulous space before them. The mandible has 8 teeth.

The Common Kukri Snake—*Oligodon subgriseus* (Dumeril and Bibron).

The total of this species reached 47, and the fact that 41 of these came from the Wynaad is difficult to explain. It evidently does not come much above 5,000 feet elevation.

Sexes.—Of the 28 sexed, 10 were ♂ and 18 ♀.

Breeding.—No female was gravid, but the season for the appearance of the young can be inferred by the following facts.

In this Journal (Vol. xix, p. 561) I recorded a young one 4·8 inches long that I thought a hatchling. This was killed in March in Cannanore. As will be seen below all my young this year taken from June to September were considerably longer, and indicate that they hatched out much earlier in the year, probably January to March.

Food.—Like *venustus* its diet consists of lizard's (snake's?) and frog's eggs. Four soft-shelled eggs were found in one specimen, about $\frac{5}{8}$ of an inch in length, their contents absorbed, and the egg-envelope collapsed. Another contained a yellow sausage-shaped mass that was almost a cast of the stomach. It measured $4\frac{1}{2}$ inches and when broken into was found to contain 5 soft shelled, empty, egg envelopes from $\frac{5}{8}$ to $\frac{3}{4}$ inches in length. These were embedded, and concealed in the coagulated yolk-mass. A young specimen $6\frac{1}{4}$ inches long also contained in its stomach a mass of coagulated yolk in which one soft-shelled, and empty egg-case $\frac{3}{4}$ inch long was embedded. A fourth specimen contained a similar yolk-mass but no egg envelope was discovered therein. A fifth specimen contained three very small lizards, the bodies of which measured about $\frac{3}{4}$ of an inch, and the tails a similar length. Flocculi of coagulated yolk adhered to them, and there seems little doubt that the snake had discovered eggs just on the point of hatching, and probably liberated the occupants in its endeavour to swallow the eggs. A mass of frog's eggs distended the stomach in one example, with no trace of the frog.

Growth.—Young of the year were represented as follows:—One $6\frac{3}{4}$ inches long reached me in June, five varying from 6 to $7\frac{1}{4}$ inches in August and eight measuring from $6\frac{3}{4}$ to $9\frac{1}{4}$ inches in September. My largest ♂ taped $19\frac{1}{2}$ inches and ♂ 18 inches.

Colour.—The crossbars consisting of more or less confluent quadrimaculate parts numbered 16 to 22 on the body, and 3 to 4 on the tail. Dark variegations are often grouped so as to suggest crossbars in the intervals.

Lepidosis.—I found the loreal absent in one specimen, and two anterior temporals in another. In one other example the 4th to 8th subcaudals were entire.

The Western Reed Snake—*Ablabes calamaria* (Gunther).

Evidently an uncommon snake, only 5 specimens having been acquired. Four of these were from the Wynaad. There is nothing special to note since all accord well with Boulenger's description. One specimen 5 inches long in August had 132 ventrals and 70 subcaudals. In another $8\frac{5}{8}$ inches long, these shields were 139 + 57. In a third $8\frac{7}{8}$ inches long 126 + 59, in a fourth ♂ (?) $9\frac{3}{4}$ inches 127 + 64, and in a fifth a ♀ (?) $10\frac{1}{4}$ inches 135 + 53.

Dentition.—The maxilla bears 24 teeth, the palatine 15, the pterygoid 16, and the mandible 18.

The Brown Tree Snake—*Dipsadomorphus trigonatus* (Schneider).

Only 3 specimens were received, and this being so, it is strange that two of these should have come from such an altitude as Frith Hall Estate. One had swallowed a lizard of the genus *Calotes*.

The Hill Tree Snake—**Dipsadomorphus ceylonensis* (Gunther).

In the paper referred to in the footnote I gave in tabular form a series of 21 specimens characterised by costals in midbody 19, ventrals varying from 214 to 235 and subcaudals 98 to 109. Between 1909 and 1917 I received from Ceylon and the Hills of South India 11 more specimens with costals 19, ventrals 209 to 240, and subcaudals 94 to 107. This year I have acquired 40 more specimens with costals 19, ventrals 214 to 239, and subcaudals 94 to 110. In the aggregate then, I have had 72 specimens with costals 19, ventrals 209 to 240, and subcaudals 94 to 110.

Habitat.—All except seven of these were captured in the Wynaad.

Sexes.—Of 33 sexed, 19 were ♂ and 14 ♀.

Food.—Frogs had been swallowed by five examples, once a *Rana limn-charis*, and twice a species of *Ixalus*. Seven other specimens had eaten lizards, three *Salea horsfieldi*, and one a *Calotes versicolor*.

Breeding.—In August I got two females in each of which 7 follicles were impregnated. In September four other females were egg-bound, the numbers of eggs varying from 5 to 8. These, very elongate in shape, measured one inch long in a specimen killed during the last ten days of that month. The prospective dams measured from $32\frac{1}{2}$ to 34 inches, (length of two not recorded), a length it would appear they attain at the end of the second year of life.

Growth.—Three examples in August and September measured from $12\frac{1}{2}$ to $15\frac{1}{2}$ inches, four others from 20 to $25\frac{1}{2}$ inches, 10 others from $31\frac{1}{3}$ to 39 inches, and six others from $44\frac{1}{2}$ to $50\frac{1}{2}$ inches. These various ranges appear to denote the broods of successive years.

My largest ♂ was $50\frac{1}{2}$, and ♀ 34 inches.

Lepidosis.—In three specimens the scale rows were found in places to be 21 for a brief interval or intervals, but when critically examined it was found that at these spots the costals remained the same. One or more shields in succession in the vertebral row were divided into three and accounted for the increase to 21, and I find this tendency in certain individuals of all the species of this genus of which I have examined a large series. Posteriorly the costal rows reduce to 15 with great consistency.

Dentition.—The maxilla in Nilgiri specimens supports from 18 to 20 teeth followed after a short gap by 2 large, grooved, and obliquely-placed pseudo fangs. (In Ceylon specimens there are only 14 to 15 teeth anteriorly). The palatine has 9 teeth. (In Ceylon specimens 7 to 8). The pterygoid has 19[?] to 21 teeth (Ceylon specimens 18 to 20). The mandible holds 25 to 28 teeth (Ceylon specimens 21 to 24).

* In 1909 I published a note in the Records of the Indian Museum (pages 151 et seq.) upon certain "forms" of *Dipsadomorphus*. I expressed the view that *ceylonensis* (Gunther) as described in Boulenger's Catalogue (Vol. iii, p. 66) includes four distinct "forms," and gave in tabular form the shield characters for each upon which reliance is mainly placed in the separation of the species of this genus. I suggested that they should each receive recognition as distinct species. Dr. Annandale in a later issue of the same Journal (Vol. iii, part 111, p. 281) dissented from my views. The conclusions drawn by me from the rather small series of specimens of each "form" that I had examined when I wrote the paper referred to, are completely confirmed by the very much larger material now available with regard to two of those "forms". The others (one from Ceylon, and one from the Andamans) do not concern us here. The fact that there is some slight overlapping in the ranges of the ventrals shields does not I think invalidate the recognition of two distinct "forms" which I still choose to regard as "species" though I expect others will not accord to them so exalted a rank.

Beddom's Tree Snake - *Dipsadomorphus nuchalis* (Beddome).

In my paper published in the Records of the Indian Museum (see footnote to *D. ceylonensis* I recorded a sequence of 16 examples characterised by costals 21 in midbody, ventrals 234 to 251, and subcaudals 90 to 108. Since then I obtained before this year another example with costals 21, ventrals 244, and subcaudals 108. This year my Nilgiri sojourn furnished 42 others with costals 21 (rarely 23, and once 25 in places), ventrals 233 to 252, and subcaudals 95 to 111. I have now therefore seen 59 examples of a "form" characterised by costals 21 (in places more), ventrals 233 to 242 and subcaudals 90 to 111.

Habitat.—This "form" was most common in the Wynaad, but fairly abundant on the slopes of the other parts of the Nilgiri District.

Sexes.—Of 25 sexed, 12 were ♂ and 13 ♀.

Food.—On five occasions frogs were discovered "in gastro" and three of these were species of *Ixalus*. Lizards furnished the meal on nine other occasions, *Calotes versicolor* twice, and *Charasia dorsalis* once. Two mice and the feathers of a bird were found in one stomach, and a single fledgling in another.

Breeding.—No gravid ♀ was included in the total.

Growth.—August and September furnished eight examples from 13 to 15 $\frac{3}{4}$ inches in length, July four from 20 to 25 $\frac{1}{2}$ inches, July to September twelve from 28 to 41 inches, and seven from 45 to 50 $\frac{1}{2}$ inches. These seem to indicate the broods of successive years. My largest ♂ was 50 $\frac{3}{4}$ inches, the largest ♀ 48 $\frac{3}{4}$ inches.

Lepidosis.—As in the previous species I noted the tendency for some shields in the vertebral row to disintegrate. In one specimen the scales would be counted as 23 in places, but here the vertebrae were broken up into the three, and the costal rows remained normal. In another there were 23 rows in the anterior, and middle parts of the body, the vertebral splitting in places to make the count 25. Posteriorly the scale rows are consistently 15.

Dentition.—The maxilla has 14 teeth, followed after a short gap by 2 elongate, grooved, pseudo fangs.

The palatine holds from 6 to 7, the pterygoid 15 to 17, and the mandible 20 to 23.

Forsten's Tree Snake—*Dipsadomorphus forsteni* (Dumeril and Bibron).

Only one specimen and that a small one came to hand. It was captured on Pilloor Estate. This measured 20 $\frac{3}{4}$ inches. The costals were 27 anteriorly to well behind midbody, and dropped to 17 two heads length before the anus. The ventrals were 260, and the subcaudals 109.

Dentition.—The maxilla holds 10 to 12 teeth followed after a short gap by 2 elongate, grooved, obliquely-set, pseudo fangs. The palatine has 6 to 7 teeth, the pterygoid 9 to 11, and the mandible 17 to 19.

Perrotet's Whip Snake—*Dryophis perroteti* (Dumeril and Bibron).

An aggregate of 57 specimens were collected, all from altitudes above about 5,000 feet.

Sexes.—Of 54 specimens sexed, 25 were ♂ and 29 ♀.

The keels are rather more pronounced in males.

Food.—Frogs and lizards form their staple diet. Of frogs 15 examples contained species of *Ixalus* (two examples two frogs, and one example three frogs). One other had swallowed a frog too digested to recognise. Of lizards toll was taken of species of *Lygosoma* by six specimens

(one containing two). Once the species was definitely *albopunctatus*. A *Gonatodes jerdoni* was recognised in one, and a species of *Calotes* in another.

Breeding.—The season is later than for most other species in these Hills. Altogether I received nine gravid females which I record in tabular form.

Date.	Length of dam in inches.	Nos. of embryos or eggs.	Remarks.
20/6 to 10/7	18	2	Contained one non-fertilised egg and one sac with an embryo $5\frac{1}{4}$ inches long.
6 to 12/8	$18\frac{1}{2}$	4	Contained small eggs $\frac{1}{2}$ inch long.
12 to 24/8	$17\frac{3}{4}$	2	Follicles distinctly enlarged to $\frac{1}{3}$ inch.
1 to 6/9	22	6	Eggs $\frac{5}{8}$ inch long with contents the consistency of a mealy potato.
"	$22\frac{3}{8}$	5	Eggs $\frac{3}{4}$ inch long.
"	23	10	Sacs $\frac{3}{4}$ inch long containing minute embryos.
"	20	5	Eggs with no trace of embryos.
"	$20\frac{1}{2}$	5	Eggs $\frac{5}{8}$ inch long.
"	22	3	Eggs with no trace of embryos.

It will be noticed from this that the majority contained eggs in an early stage of development as late as September. From analogy I judge that the young would not have been born till the end of the year, or the beginning of next.

Growth.—I think it will transpire that the embryos measure $5\frac{1}{2}$ to about 7 inches at birth, judging from the appearance of the foetus $5\frac{1}{4}$ inches in length. Four specimens varying from $8\frac{3}{8}$ to $11\frac{1}{2}$ inches in September seem to indicate birth from October last year to March this year. Twelve examples ranging between $13\frac{3}{4}$ and $15\frac{3}{4}$ inches, I take to be last year's production. Females attain a greater length than males. My largest ♂ was $20\frac{3}{4}$ inches, and no less than eight females exceeded this length, the largest being 23 inches.

Colour.—The verdant-green hue is to be accounted for in exactly the same manner as that of the next species.

Lepidosis.—The scale rows are 15 to a point well behind midbody, and reduce to 13 at a point two heads-lengths before the vent. This applies to both sexes. The ventrals in the ♂ were 137 to 142, and in the ♀ 138 to 146. The subcaudals in the ♂ were 71 to 81, and in the ♀ 65 to 75.

Green Whip Snake—*Dryophis myeterizans* (Linne).

Mr. Vernede tells me it is called "kannu pambu" (meaning "eye snake") by his coolies.

The aggregate totalled 82, mostly from the lower slopes. One killed on Liddlesdale shows that stragglers may go up to about 6,000 feet.

Sexes.—Of the 73 examples sexed, 43 were ♂ and 39 ♀.

Food.—Lizards had furnished the meal on six occasions, a *Lygosoma* once, a *Mabuia* once, and *Charasia dorsalis* once. Others were too digested to identify. Frogs had been victimised by five examples, on three occasions a species of *Ixalus* having been taken. One example had eaten an *Ixalus*, and an agamoid lizard. Another had swallowed a good sized snake of the species *Rhinophis sanguineus*. The snake was doubled up in the stomach, and not lying at full length as happens in the case of snakes victimised by *Bungarus* and *Hemibungarus*.

Breeding.—For the number of specimens collected the information derived is meagre. Only four gravid females were included. One killed between the 22nd and 25th of August, measuring 4 feet 9 inches, contained 10 eggs about one inch long with embryos from 2 to 3 inches in length inside. One killed between the 28th of August, and the 1st of September measuring 5 feet 10 inches, contained 5 eggs about one inch long with small fœtuses inside. One killed between the 1st and the 8th of September, measuring 3 feet 11 inches contained 3 embryos. One of these was $14\frac{1}{2}$ and another $12\frac{1}{4}$ inches long, and the third was very much deformed. A fourth example killed between the 20th and 30th of September, measuring 3 feet $10\frac{1}{2}$ inches, contained 4 eggs about $\frac{3}{4}$ of an inch in length. The season for the birth of the young is evidently between July and December or perhaps even January. This is borne out by a specimen $18\frac{1}{2}$ inches long, being killed in August, and the fact that one specimen late in September contained very immature eggs.

Growth.—Young of the year were not well represented. Three examples only were acquired, all in August, and these ranged between 15 and $18\frac{1}{2}$ inches. The variation in the length of the young at birth, also that between the sexes, and the long season for birth make it very difficult to follow the broods of successive years. However, 20 males ranging between $39\frac{1}{2}$ and $46\frac{3}{4}$ inches, and 14 females varying between 41 and $48\frac{3}{4}$ inches are almost certainly about completing their second year of life, and it is probable that the 8 males between $23\frac{1}{2}$ and 34 inches represent those completing their first year of life.

Females acquire a greater length. Thus my largest ♂ was 51 inches, and I had three ♀ exceeding this, their respective measurements being 56, 57 and 70 inches.

The tail is decidedly longer in the males.

Colours.—I made many observations on the colour, and it is a surprising fact that the very beautiful chlorophyll-green hue is not caused by a green pigment. The only pigment to be derived from the skin is a fairly bright yellow. The scales viewed under a good lens are seen to be studded with minute yellow points. I had frequently noticed that the spirit in which specimens had been preserved, acquired a yellow tinge and the skins became more and more bluish. Having carefully washed six freshly-removed skins with soap and water in my bath, I placed these in water and boiled them. The result was that the skins acquired a bluish tinge, and a decided yellow tinge was imparted to the water.

As I boiled this away the yellow became more pronounced and I had great hopes of obtaining a powder eventually. In this however I was disappointed, as the final stage simply left the tin coated with a thickish varnish of yellow. This I had great difficulty in dissolving again, trying chloroform, ether, and rectified spirit cold, and brought to the boiling point. Finally a 70 per cent. boiling solution of rectified spirit proved successful. The skin is really a light blue, and the minute peppering with yellow pigment produces the green effect. Some specimens are more heavily pigmented than others, and correspondingly more of a yellowish-green. If one

examines the scales on the throat one frequently sees patches of a beautiful Cambridge-blue, owing to the usual yellow pigment seen elsewhere happening to be wanting. Again in the overlapped portions of the dorsal scaling especially in the forebody the colour is seen to be Cambridge-blue, the yellow pigment here also being absent. The flank line too if examined will be seen devoid of blue, and is therefore either quite white, or when pigmented a bright, pure yellow.

When the skin is stripped, small white lines from the inside aspect of the skin are seen in echelon, forming chevrons with the apices directed backwards thus, and these marks



are found to correspond with the overlapped Cambridge-blue edging of the costal scales. An uninterrupted well-defined white line is also seen on the inside of the skin corresponding to the outwardly visible flank line. Now it is interesting to note further that the beautiful blue referred to is also not due to a pigment. It is to be accounted for by a peculiarity inherent in the skin itself. This on the inner side is heavily impregnated with black pigment, and the colourless, translucent, epithelium covering it reflects the blue of sunlight from its minute particles, whilst absorbing all the other colours.

Lepidosia.—It is curious that I found that the scale rows which are 15 to well behind midbody, reduce to 11 in males, with one exception. In females however it reduced to 13 only, with the exception of five specimens. The ventrals in the ♂ were 172 to 182, and in the ♀ 170 to 182. The subcaudals in the ♂ were 148 to 170, and in the ♀ 132 to 144.

The Brown Whip Snake—*Dryophis pulverulentus* (Dumeril and Bibron).

This proves to be a much more uncommon species than I had previously supposed, only two specimens being procured.

One ♂ was $54\frac{1}{2}$ inches long, the tail accounting for $22\frac{1}{4}$ inches. The ventrals were 191 and the subcaudals also 191. The ♀ example measured $57\frac{1}{4}$ inches of which the tail accounted for 23 inches. The ventrals were 190, and the subcaudals 181. The tail of a skink probably a *Mabuia* was found in the stomach.

As far as I am aware this has not previously been reported from the Nilgiri Hills.

Dentition.—The maxilla supports anteriorly 5 small teeth, followed by 2 large and subequal teeth fully twice the length of the preceding. After a gap that would take about 3 teeth, there is a series of 5 to 6 quite small teeth succeeded by 2 large, grooved, subequal, pseudo fangs about thrice the length of the immediately preceding array. The palatine has 9 teeth, and the pterygoid 19 to 22. The mandible has anteriorly 5 teeth progressively increasing in length, followed by a gap that would take about 4 teeth, after which there is an array of from 13 to 16 small teeth.

The Golden Tree Snake—*Chrysopelea ornata* (Shaw).

Seven specimens only were received, all of the variety figured in my popular article on this snake. (Vol. xviii, opposite page 228, figures 1 to 4.)

The vermilion vertebral spots were obolescent in some, faint in others, and bright in others in the anterior part of the body especially.

Food.—One had swallowed a lizard of the species *Gonatodes jerdoni* ().

Growth.—One measuring $11\frac{1}{2}$ inches was evidently this year's production. Two measuring 25 and $26\frac{2}{3}$ inches were obviously last year's progeny. The largest was a ♀ $47\frac{1}{2}$ inches in length.

Lepidosis.—The ventrals ranged between 216 and 228, and the subcaudals from 119 to 140. The last ventral as is usual was bifid like the anal.

SUB-FAMILY ELAPINÆ.

The Common Krait—*Bungarus cœruleus* (Schneider).

Only 5 examples were acquired and all from the Wynaad. It would appear from this that the species does not ascend these Hills to the same level as in the Western Himalayas where I have had specimens up to 5,000 feet.

Sexes.—Four were of the ♀ and one of the ♂ sex.

Food.—All the three young examples had fed on *Typhlops* which appeared to me to be the species *fletcheri*. The largest of these *Typhlops* was $5\frac{3}{4}$ inches long.

Growth.—One killed in August measuring $12\frac{1}{4}$ inches was this year's hatchling. Two others $16\frac{1}{2}$ and $17\frac{1}{2}$ inches, I think are probably this year's hatchlings also.

The Cobra—*Naja tripudians* (Merrem).

Twelve examples were acquired. These were all light specimens with a well-defined binocellus on the hood conforming to forma *typica*.

Food.—A small example $16\frac{1}{2}$ inches in length had eaten a young snake of the species *Zaocys mucosus*.

Growth.—Specimens of 14, $14\frac{1}{2}$, $15\frac{3}{4}$ and 16 inches were, I think, hatched out this year.

The Hamadryad—*Naja bungarus* (Schlegel).

Two young specimens came to hand, both I think just hatched, and being encountered together on the same day (between the 25th and 27th of August) probably of the same brood.

Colour.—They were both as black as an ordinary krait (*Bungarus cœruleus*) with very similar pure white bands numbering in one example 32, and in the other 36 on the body, and 12 and 11 respectively on the tail. The head was black with the tip of the snout white, a white transverse band across the prefrontals, an interrupted, narrow band just behind the eyes from which two white stripes converged backwards where they almost met a similar white oblique stripe on the neck. On the belly plumbeous replaces the black of the dorsum, and this gets darker posteriorly till beneath the tail, the bands are quite as black below as above.

Size.—One measured $20\frac{3}{4}$, and the other $20\frac{1}{4}$ inches.

Lepidosis.—The ventrals in the former were 241, and in the latter 239. The subcaudals in the former were 85, the 1st to 13th, 25th, 37th to 40th entire; in the latter 37, the 1st to 15th, 19th to 22nd, 29th and 30th entire. The costals are, as I have always found them, 19 over the middle of the hoods, two heads-lengths behind the head 17, at midbody 15, and two head-lengths before the anus 15. The vertebral row is slightly enlarged.

I came across one largish specimen while butterfly catching on the ghat road at about 2,500 feet elevation. My attention was arrested by what I took to be a very loud hissing, and as I looked round I saw a large, blackish snake about 20 yards away, through a window in the foliage that allowed me to see it, without my attracting its attention. It was moving extremely slowly up a five foot bank on the cart road, and I must have had a good 30 seconds to observe it. I should judge it at about 9, perhaps 10 feet, and as it dilated its hood very distinctly, in response to the agitated gibberings of a squirrel (*Funambulus striatus*) in the twigs of a lantana bush above it, there can be little doubt about its identity. The noise I took to be a prodigious hissing proved to be the scoldings of a magpie robin (*Copsychus saularis*) that was perched in the lantana thicket. With only a butterfly net at my command I gave the snake a wide berth.

Dentition.—The maxilla supports 3 teeth behind the fangs. The palatine teeth number 7 to 9, the pterygoid 10 to 14, and the mandible 14 to 16.

The Striped Coral Snake—*Hemibungarus nigrescens* (Gunther).

The 58 representatives of this species show that it inhabits a belt between about 3,000 and 7,000 feet elevation. Four came from over 6,500 feet.

Sexes.—Of 39 sexed, 27 were ♂ and 12 ♀.

Disposition.—It appears to be a very quiet, and inoffensive snake. A friend of mine encountered one on the road towards Lamb's Rock (Circa 6,000 feet). It made no attempt to escape but crawled slowly along without showing any alarm. He walked right up to it, and finally killed it. Such a nature would account for the character of its diet, for in every case where it had fed the snake victimised was one of the most inoffensive and slowly moving species.

Food.—It is entirely ophiophagous in habit. A *Plectrurus perroteti* had been swallowed on five occasions, a *Xylophis perroteti* on four others. *Silybura ocellata* had furnished the repast on two occasions, and *Silybura brevis* on one other. A *Melanophidium wynadense* had been victimised once. *Typhlops* provided the meal on three occasions, a specimen of *beddomi* once, and what appeared to be *fletcheri* twice. In every case the snake swallowed was lying at full length within, and in the case of large specimens these extended forwards into the gullet.

Breeding.—No single ♀ had follicles fertilised. Three specimens in the late Mr. Gray's collection were gravid, measuring respectively $25\frac{1}{2}$, 26 and $26\frac{3}{4}$ inches, and contained 4, 3 and 6 eggs, respectively. It is evidently not prolific. The lengths cited above point to sexual maturity at the end of the second year of life. The eggs were in every case too small to expect an embryo to be visible and none could be discovered.

Growth.—Young of the year were represented in specimens measuring from $9\frac{1}{16}$ to $9\frac{3}{4}$ inches (3) in July, from $8\frac{1}{2}$ to $9\frac{3}{4}$ (6) in August, and from 9 to $11\frac{1}{2}$ inches (5) in September. A young one in the late Mr. Gray's collection taped $8\frac{3}{8}$ inches. A further series of 10 specimens ranging between $17\frac{1}{4}$ and $23\frac{3}{8}$ inches evidently represents last year's production, and another series of 14 between 30 and $38\frac{1}{2}$ inches appear to be the preceding year's progeny. The season for the appearance of the young is probably from May to August. My largest ♀ was $31\frac{1}{4}$ inches, and I had six ♂ exceeding this measurement. My largest was $40\frac{1}{2}$ inches, and I believe a ♂. (Ventrals 240 and subcaudals 37).

Colour.—I would place all the examples with Boulenger's variety "B." I noticed that in the young the colour is chestnut (as applied to a horse). The black stripes are well defined and bordered with beaded, white lines.